Code Reference Package

Fire Prevention Division
Engineering Plans Review Branch
4100 Chain Bridge Road
3rd Floor
Fairfax, Virginia 22030
(703) 246-4806

for

Architects,

Engineers,

Designers and

Installers

2000 Code Edition (October 1, 2003)

FIRE PREVENTION DIVISION

Code Reference Package

2000 Code Edition, (Issued October 1, 2003)

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Codes in Force
Fairfax County Fire Prevention Division
Effective October 1, 2003

Note: ALL PERSONS ARE REQUIRED TO CONSULT AND COMPLY WITH CODE. USE OF THE CODE REFERENCE PACKAGE DOES NOT EXEMPT THE USER FROM DIRECT USE OF THE CODE.

1. **Fairfax County Public Facilities Manual** current edition. See especially Chapter 9. PFM is continuously updated.
2. **Uniform Statewide Building Code** State of Virginia 2000 edition, incorporating International Building Code, 2000 with emendations and portions of the 2001supplement. (ICC= International Code Council)
   ICC International Mechanical Code 2000 and portions of 2001 supplement.
   ICC International Plumbing Code 2000 and portions of 2001 supplement.
   NEC 1999 as referenced in 2000 ICC Electrical Code.
3. **Fairfax County Fire Prevention Code**, incorporating the International Fire Code with emendations, as set forth in VA Statewide Fire Prevention Code 2000.
4. **Elevator Code** ASME A17.1-1996, with 97, 98, 99 Addenda
5. **Accessibility Code** ANSI A117.1-1998, Accessible and Usable Buildings and Facilities.
6. The following principal National Fire Protection Association (NFPA) standards. This list is not exhaustive of the NFPA standards referenced by USBC/IBC.

NFPA	10	(1998)	Portable fire extinguishers
NFPA	13	(1999)	Installation of sprinkler systems
NFPA	13D	(1999)	Installation of sprinkler systems in one and two-family dwellings and mobile homes
NFPA	13R	(1999)	Installation of sprinkler systems in residential occupancies up to four stories in height
NFPA	14	(1996)	Standpipe and hose systems
NFPA	17	(1998)	Dry chemical extinguishing systems
NFPA	17A	(1998)	Wet chemical extinguishing systems
NFPA	20	(1996)	Centrifugal fire pumps
NFPA	22	(1998)	Water tanks for private fire protection
NFPA	24	(1995)	Private fire service mains and their appurtenances
NFPA	25	(1998)	Inspection, Testing & Maintenance of Water-Based Fire Protection System
NFPA	30	(1996)	Flammable and combustible liquids code
NFPA	30A	(1996)	Automotive and marine service station code
NFPA	30B	(1998)	Manufacture and Storage of Aerosol Products
NFPA	37	(1998)	Stationary Engines
NFPA	72	(1999)	National Fire Alarm Code
NFPA	80	(1999)	Fire doors and windows
NFPA	2001	(2000)	Clean Agent Fire Extinguishing Systems

PLAN SUBMITTALS

Plan type	Code Reference	Submit to	Phone contact	Permit?
Assembly/ exhibit	Fire Prev. Code	FMO/Inspections	703-246-4849	FPCP@FMO
Building	USBC	DPWES/BPR	703-324-1645	@DPWES
Building Tenant	USBC	DPWES/BPR	703-324-1645	@DPWES
Fire Alarm	IBC 907	FMO Plans Rvw	703-246-4806	Low Volt if necc
Fire Alarm Tenant	IBC 907	FMO Plans Rvw	703-246-4806	Low Volt if necc
Fire Pump	NFPA 20-99	FMO Plans Rvw	703-246-4806	Plumb-DPWES
Fireworks	Fire Prev. Code	FMO/Inspections	730-246-4849	FPCP@FMO
Foam	NFPA 11 Series	FMO/Plans Rvw	703-246-4806	Plumb-DPWES
Clean Agent	NFPA 2001	FMO/Plans Rvw	“	Mech-DPWES
Special Locks	USBC 1003	FMO/Plans Rvw	“	Low Volt if necc.
Propane (LPG) Tank	FPC/NFPA 58	“	“	Mech-DPWES
Range Hood	IMC 509	“	“	Mech-DPWES
Site Plan	PFM	“	“	DPWES/OSDS
Sprinkler	13-99	“	“	Plumb-DPWES
Sprinkler Tenant	13-99	“	“	“
Tank Removal	FPC	FMO/Inspections	703-246-4849	FPCP@FMO
Tent/ Temporary	IBC 3103	FMO/Plans Rvw	703-246-4806	FPCP@FMO
Aboveground Tank	FPC/IMC	FMO/ Plans Rvw	“	Mech-DPWES
Underground Tank	FPC/IMC	“	“	Mech-DPWES

Fees: All work is paid per fee schedule published by the Department of Public Works and Environmental Services. This includes work done in Plans Review, Systems Testing, and Inspections. Billing rate is $96.00 per hour.

FIRE AND RESCUE DEPARTMENT
FIRE PREVENTION DIVISION
REVENUE AND RECORDS BRANCH

PLANS REVIEW BILLING INFORMATION FORM

PARTY RESPONSIBLE FOR PAYMENT

Company Name:
_____

Address:
_____

City: _____State:
_____Zip:_____

Phone: _____Contact
Person:_____

SUBMITTING FIRM (If same as above – write same)

Company Name:
_____

Address:
_____

City: _____State: _____Zip:
_____

Phone: _____Contact Person:
_____

PROJECT INFORMATION

Type of Plan:_____Shell (Y or N): __ or Tenant (Y or N): _____
Plan # or DEM Que #:_____
Resubmission: (Y or N) _____ Revised Approved Plan (Y or N) _____
Previously Rejected (Y or N) _____As Built (Y or N) _____Plan sets (#)____

Project Name:
_____

Address: _____Suite:
_____

Floor: _____

City: _____ State: _____Zip: _____

COUNTY OF FAIRFAX

Fire Prevention Division
4100 Chain Bridge Road, 3rd Floor
Fairfax, VA 22030
(703) 246-4800

Account Number:_____
Permit(s) Expire: _____
Occupancy Load: _____

APPLICATION FOR FIRE PREVENTION CODE PERMITS

Application is hereby made by the undersigned for a Permit(s) to conduct the following industry, trade, occupation, storage or use.

Fire Prevention Code(s) Applying for

_____
_____
_____
_____
_____
_____
_____
_____

Amount Due: _____ Return with payment, make check payable to "THE COUNTY OF FAIRFAX"

Business/Headquarters Name:
_____

Billing Address:
_____

All conditions surroundings and arrangements are to be in accordance with the Fire Prevention Code.

I, _____, hereby accept full responsibility for the adherence to all
signature
requirements of the Virginia Statewide Fire Prevention Code and the County of Fairfax

Fire Prevention Code pertaining to the above application.

Inspection Location Name:_____
Inspection Location: _____
Name of Person Making Application: _____
Print
Telephone: _____
Emergency Telephone:_____

OFFICE USE ONLY

_____
_____
_____
_____
_____

Mail to_____ Inspector _____

_____ Date: _____

_____

TENANT/BUILDING PLAN INFORMATION

BUILDING PLAN REVIEW BRANCH, DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES
FIRE PREVENTION DIVISION, FIRE & RESCUE DEPARTMENT

Project Name:

_____

Address: _____

Suite: _____ **Floor:**_____**Zip Code:**_____

Submitting Firm: _____

Address: _____

Phone: _____ **Expediter:** _____

RESPONSIBLE PARTY: Designated to pay all bills per Code of Fairfax County, Chapter 61, Section 61-1-5

Billing Name: _____[Account No:_____]

Address: _____

Phone: (_____)_____ Contact Person:_____

Purpose of Space:	Floor #
Scope of Tenant Work:	
Hazardous Materials: _____Combustible Liq. _____ Flammable Liq ___Other_____	
Tenants Per Floor: ___Single _____ Multiple	Tenants Use Group :

Use Group of Building:	Type of Construction:
Number of Stories in Building :	Code Year Building Designed Under: VUSBC
Hi-Rise Building: Yes No	Fire Control Room: Yes No
Gross Floor Area Per Floor:	Tenant Space Square Footage:

Sprinklers: Yes No	Partial	Fully
Monitoring by Approved Central Station: ___ Yes ___ No Name: _____		
Fire Alarm System: ____ Yes ____ No Type:_____		
Standpipes: ____ Yes* ___ No *IF YES, PROVIDE LOCATION ON PLAN.		

FIRE RESISTANCE DESIGN NUMBER (If Necessary)	
Floor/Ceiling:	Roof/Ceiling:
Corridor Separation:	Tenant Separation Walls:
Columns:	Beams:

Revised July 2002

COUNTY OF FAIRFAX
FIRE PREVENTION DIVISION

ENGINEERING PLANS REVIEW BRANCH
4100 CHAIN BRIDGE ROAD, 3RD FLOOR
Fairfax, Virginia 22030
(703) 246-4806

FIRE ALARM PLANS CHECK IN FORM

Building Name: _____

Address: _____

Suite #: _____ Floor: _____ Building Permit # _____

CONTRACTOR:

Name: _____

Address: _____

Telephone Number: _____

EQUIPMENT SUPPLIER:

Name: _____

Address: _____

Telephone Number: _____

PLEASE NOTE: The **submittal cannot be accepted** by this office if the following items are not submitted. If the submitter does not supply the items listed below in one complete package, no review or approval will be conducted and the items shall be returned to the individual at the counter.

Are the items below submitted with this submittal?		YES	NO
1. Electrical Floor Plans	(3) Copies	☐	☐
2. Wiring Riser Diagrams	(3) Copies	☐	☐
3. Operational Description with Battery Calculations	(3) Copies	☐	☐
4. Any Necessary Mechanical Risers or Floor Plans Necessary to Evaluate Duct Detection or Smoke Control	(3) Copies	☐	☐
5. Annunciator Panel Diagram	(3) Copies	☐	☐
6. Manufacturer's Cut Sheets for All Devices, Including Sprinkler System Alarm and Supervisory Devices, Verifying Listing	(3) Copies	☐	☐

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-001A
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: OUTLINE OF REQUIREMENTS BY THE FIRE PREVENTION DIVISION FOR OCCUPANCY (NON RUP) OF NEW BUILDINGS	

TO: All Job Superintendents

Prior to occupancy the following must be completed:

1. The standpipes shall go up with each floor. A standpipe with valves having NST and 2 ½ x 1 ½ " caps shall not be more than one floor below the highest forms or staging. There shall be a fire department connection at the first floor level. This connection shall be marked so it can be readily and easily accessible at all times.

2. Submit three (3) sets of plans to the Fire Prevention Division for approval of all fire detection and fire suppression systems, and special locks.

3. Two (2) sets of approved site plans shall be submitted to the Fire Prevention Division for designation of fire lanes. (See Fire Lanes Information in this Package)

4. All permits and test fees shall be paid before the test date.

5. Approved plans with original notes, stamps, and signature shall be on the job site before any tests are made (including site plans with approval and original signature from this office).

6. No piping shall be covered up or otherwise made inaccessible for inspection before systems are tested.

7. All systems shall be pre-tested by the contractor before witnessing of the final test by Fire Prevention Division personnel.

8. The following inspections and tests are required. All tests shall be set up with the Fire Prevention Division at least ten (10) working days before the desired date. Call 703-246-4821 to arrange a scheduled appointment time.

8A. A visual inspection of an underground fire line is required before it is covered. If line is covered before the hydrostatic test is performed, there shall be no drop in pressure during the test. **Original, signed, approved site plan must be on the job for this test to be witnessed.**

Outline of Requirements by the Fire Prevention Division
for Occupancy of New Buildings

8B. A 200-pound hydrostatic test on underground fire line. Approved site plan must be on the job.

8C. A flush test of an underground fire line before it is connected to the fire suppression system, using at least a 4" flushing line.

8D. All fire alarms, sprinklers, special locks and other systems must be tested and the test witnessed by Fire Prevention Division personnel. Smoke control systems must have testing completed by Special Inspector per IBC (Section 1704) and IFC. Special inspection report for smoke control must be approved by FPD.

8E. Test stairwell pressurization in high-rise buildings.

8F. All elevators must be tested for recall and fireman's use, phase I and phase II, using normal and (if present, e.g. high-rise) backup power sources.

9. Fire lanes shall be installed per Fairfax County standards and approved by the Fire Prevention Division.

10. All fire protection systems must be tested and approved before final occupancy inspection is requested.

11. An occupancy inspection request is to be made to this office after all of the above have been completed. Call 703-246-4849 to schedule an occupancy inspection.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-001B
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: FIRE PROTECTION AND SAFETY REQUIREMENTS FOR BUILDINGS AFTER FIRST TENANT OCCUPANCY	

TO: All Job Superintendents

The following fire protection and safety procedures shall be implemented in all buildings after the initial tenant occupancy. Initial tenant occupancy cannot take place until shell approval has been obtained. Prior to any tenant occupancy, a Building Shell occupancy inspection and approval is required by all inspection disciplines including, Building, Electrical, Mechanical, Plumbing, and Fire Prevention (Health Department is required for food service establishments, medical buildings etc.)

Building Shell Nonresidential Use Permit

The following building shell fire and life safety features must be completed, inspected, and approved prior to the issuance of the Shell Nonresidential Use Permit (Non RUP), and **before first tenant occupancy**.

a. Exit Stairs
b. Grade Exit Lobbies
c. Grade Exit Corridors or Passage Ways
d. Elevator Shaft Enclosures
e. Mechanical Shaft Enclosures
f. Required Exit Lights and Emergency Lighting
g. Elevator Emergency Recall System or Elevators must be Locked Out of Service
h. Required Fire Proofing or Structural Members in the Core and Occupied Areas Must be Completed
i. Fire Stopping of Wiring, Piping or Other Penetrations, Both Vertical and Horizontal, of Floors, Ceilings and Walls
j. Combustible Tank and Construction Debris Must be Removed.
k. Storage Shall Comply with Section A1 through 4
l. Fire-fighting, Fire Detection, and Suppression Systems Shall be in Compliance with Section C below.
m. Fire Department Access Key Box in place.

A. Construction Materials Storage

1. Noncombustible storage (See definition) shall be unlimited, however, storage shall not exceed the structural load design of the floor.

2. Combustible storage (See definition) shall be limited to 2500 cubic feet or 10 percent of the floor area. Storage exceeding 2500 cubic feet will require a Fire Prevention Code Permit in accordance with the Fire Prevention Code.

3. Storage, combustible or noncombustible, shall be arranged in neat piles with the floor kept broom clean and free of trash and construction debris. Storage shall be kept a minimum of two feet below ceilings or the lowest member of the floor/ceiling or roof/ceiling assembly.

4. Combustible storage areas located on an occupied floor shall be separated from the occupied areas by a one hour fire rated partition.

Definitions (Examples of)

NONCOMBUSTIBLE STORAGE	**COMBUSTIBLE STORAGE**
Dry Wall	Hollow core wood doors
Metal Studs or Fire-retardant lumber	Wood studs, Paneling and Other Wood Products
Steel or Other Metal Doors	Carpet and padding
Solid Core Wood Doors incl. Package aids without voids	VCT and Base
Sheet Metal Duct	Insulation with Combustible Vapor Facing
Masonry Products	Flammable/Combustible liquids
Noncombustible insulation	Adhesives and Paints, etc.
Plumbing Fixtures	Any item of “noncombustible storage” where the quantity of combustible packaging or storage aids are deemed excessive by the building or fire official.
Light Fixtures Wrapped in light plastic	

B. Construction Materials Sprinkler Requirements

1. In fully sprinklered buildings, sprinkler protection shall be maintained at all times.
2. In non-sprinklered buildings, an approved limited area sprinkler system shall be provided for combustible storage if an adequate water supply is available, i.e., standpipe system.
3. Sprinkler heads shall be located within 12 inches of the underneath side of the floor or roof deck above in either the pendent or upright position. If the ceiling grid and tile are in place the sprinkler shall be installed in the pendent position at the ceiling level.
4. The use of commercial rapid response sprinkler heads, located at the future ceiling line without ceiling tiles in place, except at the sprinkler head location, will be considered as an acceptable alternative to #3 on a case-by-case basis. Minimum 4' x 4' tile must be in place at head location.
5. Where in the opinion of DPWES Building Inspections or the Fire Prevention Division, the type or quantity of combustible storage exceeds the limitations of the existing sprinkler system design, the sprinkler system in these areas shall be modified to conform with the fire hazard posed by the combustible storage.

C. Operational Maintenance of Fire Protection Systems, Exit Ways, and Occupancy Permit Requirements

1. With the exception of residential apartments and condominiums, the Fire Prevention Division occupancy inspection occurs *after* tenant move in. In buildings of Use Group A, E, I and H, occupancy inspections must be performed prior to issuance of the Non Residential Use Permit (occupancy permit) by the Zoning Administration Division.
2. In all other Use Groups, the Non Residential Use Permit may be issued prior to the Fire Prevention Division occupancy inspection. The following approvals must be obtained prior to issuance of the Non Residential Use Permit:

   Building final, Electrical final, Plumbing final, Mechanical final
   Health final (if applicable)
   Fire protection system final

   Occupancy inspections must be scheduled within 5 days of the issuance of the Non Residential Use Permit.

3. No inspections will be made unless the approved construction drawings are on the job site for all inspection disciplines. This includes FMO approved shop drawings for any sprinkler, fire alarm, or other fire protection systems.

4. The entire core, including exit corridors, passageways, stairs, and elevator shafts and doors must be maintained throughout the building. Any work required in any part of the exit way system, after the first tenant move-in, shall be conducted after normal business hours or the building will be ordered evacuated.

5. The Public Safety Communications Center (PSCC) shall be notified when any fire suppression, detection, or fire-fighting system is placed out of service and when placed back in service. The telephone number for making these notifications is (703)-691-2131.

6. All sprinklers, standpipes, fire alarm systems and other required fire suppression or fire-fighting systems shall be activated throughout the entire structure for first tenant occupancy. Under no conditions shall any fire suppression or fire-fighting system be shut off to any occupied area unless the valve or other activation control mechanism is continuously manned, during the period the system(s) are shut off. If this provision is deemed unworkable, any work shall be done after normal business hours. A documented fire watch shall be instituted during the time any fire suppression or firefighting system is out of service. Call 703-246-4821 for fire watch procedures.

7. See Sections A and B above for construction materials storage requirements.

8. If any system must be taken out of service during normal business hours, a documented fire watch shall be instituted during this time period. (See item 6 above). The number of persons required will be such that the entire building can be checked every hour with the exception of Residential (Use Groups R-1 or R-2) Institutional (I-1, I-2 and I-3) and Education (Use Group E) which must be checked every half hour. A written record, including date, time, and the person(s) conducting the fire watch is required.

The criteria set forth in this document should cover the majority of field conditions. It is conceivable that individual situations may arise which must be evaluated for compliance on a case-by-case basis. Please call the Inspections Section for any related questions at 703 246-4849.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-002
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: FIRE PROTECTION SYSTEMS IN BUILDINGS UNDER CONSTRUCTION AND RENOVATION	

TO: Contractors, Engineers, Architects
Designers, Installers, Mall Managers

During any construction or remodeling operation, it is important that the fire protection system remain operable. An existing system scheduled for removal shall not be removed until the new system is installed, tested and approved. When it becomes necessary to disable any system, it shall only be allowed after normal business hours and under the following conditions.

1. The Public Safety Communications Center dispatcher at (703)-691-2131 shall be notified prior to disabling any system. The following information will be provided:

- The name of the person calling;
- A telephone number where they can be reached;
- The reason the system is disabled;
- The anticipated time and date the system will be returned to service.

2. Establishment of a documented fire watch (call 703-246-4821, or PSCC after hours) which will tour the building continuously, recording the date, time and area checked in a notebook that can be visually inspected.

3. Notification to the Emergency Operation Center dispatcher when the system is returned to service.

Repairs or modifications to existing systems in individual tenant spaces will be allowed during normal business hours, provided there are supervised control valves for each space, and there is no combustible storage in that space. In addition, responsible personnel shall remain in that area until the system is restored to service. Exceptions to the above shall be allowed for emergency repairs only, and those repairs shall be diligently pursued.

DOOR LOCKS, EXITS, AND SECURITY

In order to clarify the code requirements under the Virginia Uniform Statewide Building Code, 2000 edition (incorporating the International Building Code 2000) and the Virginia Statewide Fire Prevention Code, 2000 edition (incorporating the International Fire Code 2000), regarding special locks and their use or prohibition on exit doors, the following considerations must be borne in mind:

1. Is the door to be locked an exit door? Does it control an exit path, for anyone, at any time, in the building?
2. Is the door to be locked a fire-rated door? Is the door labeled? What is the rating in hours of the door, if it has such a rating?
3. Is the door in an exit stairwell?
4. Is the door in an elevator lobby?
5. Does the door pertain to one tenant, to more than one tenant, or to the whole building population in terms of those people who would have to pass through it in order to exit the building at any time?
6. Does the building have a full sprinkler system or full alarm system? If not, special egress locks cannot be installed (IBC 1003.3).

If you cannot answer all of the above questions, then you cannot assess the code requirements which pertain to the use or prohibition of special locking devices on a particular door. So, first, go establish the above information for any door on which you intend to install special locks.

Then, the following code sections apply:

A. **All special locks (including those installed by or for tenants in tenant areas)**: (see also International Building Code, hereafter referred to as IBC, Section 1005.3.1 and 1003.3.1.8 for main exterior egress door), IBC 1003.3.1.8.2 and 1003.3.1.3.4. Any special locking device installed under the above codes must meet one or the other of these sections, known as the “push-bar option” and the “motion sensor option”. You must consult the code for the list of all 8 or more items under each of these sections which must be complied with. Do not attempt to submit any special lock plan which does not list all items found under these sections in its sequence of operation. If you omit any one element your plans cannot be approved.

B. **Any exit stairwell door**: IBC –1003.3.1.8.4, 1003.3.1.8.2, 1003.3.1.3.4, 403.11, IFC. In addition to the items under A above, the IBC says (1003.3.1.8.4) that “all interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort.” An exception is “doors arranged in accordance with Section 403.11” Section 403.11, while found under the high-rise provisions, applies to any building in which the stairwell doors are proposed to be locked, and mandates that there be a stairwell door unlock key switch at the main annunciator panel location in the building. In addition, section B-403.1.1 mandates that there be an emergency (call-out)

phone for use by anyone trapped in the stairwell.

Thus, any time you wish to provide special locks on a stairwell door, you must arrange for the override and the call out phone.

Stairwell doors are fire-rated doors, and as such (see NFPA 80-99, 2-4.4.3) require **positive latching.** This means that normal electric strikes in which the strike plate fades away cannot be used. There are certain exceptions to 2-4.4.3 which provide that "in a fire emergency, the door becomes positively latched." Thus, you must provide for positive latching on a fire door.

C. **Hardware**: Rated doors (all exit stairwell doors are rated; other doors may carry a rating as well). **All rated doors must have rated hardware**. If you do not have rated hardware on a rated door, then your plans cannot be approved. If the cut sheets for the hardware you propose to install do not show explicitly that the hardware is rated, then it cannot be installed on a rated door. Common places where rated doors occur are: stairwells, horizontal exits, fire separations, dwelling unit separations, rated corridors, etc.

1. Builders Hardware: (UL category as found in the Underwriters Laboratories Fire Resistance Directory Volume 3. "Builders hardware for swinging fire doors of the composite, hollow-metal, metal clad, sheet metal and wood-core types are listed in the following categories: Auxiliary locks, Electric strikes, Fire Exit Hardware, Automatic type flush or surface bolts, Manual type flush or surface bolts, Self-latching type flush or surface bolts, Single Point locks or latches, Electrically controlled single point locks or latches and two or three-point locks or latches" (See pp 3076 and following.)

2. Fire Exit Hardware: If a door is both an exit door and requires panic hardware (See 1003.3.1.9), then you must provide fire exit hardware on this door. Any special locks which you install must also meet the UL listing for fire exit hardware.

3. Un-rated doors: must meet 1003.3.1.8.2 and 1003.3.1.3.4. Hardware must be listed for the exiting purpose, but does not have to carry a fire rating.

4. Mounting Height: (1003.3.1.8.3): 48" A.F.F. max to 34" A.F.F. min.

D. **Other considerations**:

1. Number of doors through which a person must pass: IBC 1003.3.1.8.2. "A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit." Note that this option is not permitted for an assembly occupancy. Option 1003.3.1.3.4. is permitted in an assembly occupancy. This is because a delay is involved in the provisions of 1003.3.1.8.2.
2. **Flush and surface bolts prohibited** by 1003.1.8.1.

3. **Every floor area must be provided with two remote exits**: see 1005.2.1. (There are some exceptions to this, but be very careful about invoking them. Elevator lobbies, for example, need two ways out. Main corridors of individual floors must provide access to two remote exits.)

4. **Secure Tenant Areas or Secure Rooms**: The code only controls exiting, and does not place limitations on entry. If you have controlled entrance and exit, then the controlled exit must conform to the above code sections. If it is to be shown that the device to be installed in a secure tenant area or room meets all of the criteria of 1003.3.1.8.2 or 1003.3.1.3.4., then this must be explicitly shown on the plans.

5. Listings: Found in the following locations:
*UL Fire Resistance Directory, vol. 3; 2002 ed. Fire Door Accessories (Categories GVUW, pp. 3064 ff), Hardware (GWGR) and Builders Hardware (GWTZ), pp. 3076 ff.
Note: Underwriters Laboratories provides categories of listed hardware in the above named directories. Other listing agencies may also provide listed hardware, provided that they are "nationally recognized testing laboratories." The four letter designations are attached by UL to indicate the precise category under which a specific product or item is listed.

SECURITY ISSUES:

Security is not treated per se in the building code. The only concern of the Virginia Uniform Statewide Building Code in exit terms is people's ability to move out of the building, including adequate provisions for persons with disabilities. There are separate documents, not part of the building code, which provide information on security procedures:

1. Vulnerability Assessment of Federal Facilities, June 28, 1995, Dept of Justice.
2. Federal specification: Locks, combination, FF-L-2740,Federal Supply Service, GSA.
3. Standards for the Physical Protection of National Resources and Facilities, U.S. D.O.C., National Institute of Standards and Technology, NISTIR 4618, July, 1991.
4. Navy Physical Security Equipment Manual, Dept. Of the Navy, Office of CNO, 1989

Note that the building code will not recognize any other standards with regard to exiting. Hence, design of secure areas and secure facilities must provide for exiting procedures as discussed in the building code sections cited above. Security design should therefore be premised on the identification of the secure perimeters to be maintained, the entry controls which are to be put in place, and technical means for providing response to intruders which simultaneously complies with IBC 1003 (all) and other provisions mentioned above. This means that particular attention has to be placed on the total movement pathway geometry for all occupants of the building.
A detailed exiting analysis must form part of any reasonable security design.

PLANS SUBMITTALS FOR SPECIAL LOCKS

Under the Uniform Statewide Building Code Section 111.2, and IBC 907.1.1, SFPC 108.7.3., plans submittals are required for the installation of special locks.

Contents of the submittal:

1. **Floor plan**, showing all doors and devices to be installed, with sufficient detail to indicate:

    a) On which side and at what height each device is to be installed, with reference to the door,
    b) The complete exiting pattern of the floor on which the door is located, including all surrounding areas, the main exit stairs, etc.
    c) A complete symbols list, with accurate device names and part numbers for each item to be provided in the installation, along with a door list, showing ratings and sizes of the doors on which devices are to be installed, numbering each door and showing the list of devices to be at that door
    d) Complete building address, floor number, tenant space name and number, contractor and submitter name, address, phone, FAX, space occupant, use group of space and floor.

2. **Materials list**: All parts, components, or wiring, with complete cut sheets verifying the listing of each item.

3. **Sequence of operation**: must conform to UUSBC 1003.3.1.8.2, 1003.3.1.3.4, 403.11, 1003.3.1.8.4. Incomplete or erroneous sequence of operation is unacceptable.

4. **Wiring diagram**, including details of any and all interfaces with the fire alarm system, including which modules of the existing system will be utilized for interconnection. Wiring type.

5. **Power supplies**. Any power supplies associated with the installation, showing how they will drop out (fail safe) properly if necessary.

6. **Stair door unlock switch location** and details if provided (see 1003.3.1.8.4.).

7. **Signage details**, with full dimensioned text of required lettering and location relative to the door shown, including height above finish floor and offset from the door (elevation views).

8. Location of existing or proposed stairwell call-out phones.

THREE COPIES OF THE ABOVE SUBMITTAL (with billing information form) MUST BE SENT TO:

Attn: Plans Review
Fairfax County Fire and Rescue Department
Fire Prevention Division
4100 Chain Bridge Road, 3rd floor
Fairfax, Virginia 22030-7001
Phone: (703) 246-4806, FAX: (703) 691-1053

The Plans Review staff cannot be responsible for assembling or collating your submittal materials.

THEY MUST BE IN THREE COMPLETE COPIES, PROPERLY ASSEMBLED AND LABELED. IF THEY ARE NOT, THEY CANNOT BE REVIEWED.

REFERENCES:

INTERNATIONAL BUILDING CODE, 2000 EDITION, with 2001 supplement, available from:
BOCA International, 4051 W. Flossmoor Rd, Country Club Hills, IL 60478-5795
Phone: (800) 214-4321

STANDARD FOR FIRE DOORS AND FIRE WINDOWS, 1999 EDITION, NFPA 80, published by:

National Fire Protection Assn.
1 Batterymarch Park, Quincy, MA 02269-9101
Phone: 800-344-3555

UNDERWRITERS LABORATORIES, INC, DIRECTORIES:
Building Materials Directory, Automotive, Burglary, and Mechanical Equipment Directory, Fire Resistance Directory
333 Pfingsten Road, Northbrook IL 60062-2096
Phone: (847) 272-8800, FAX: (847) 272-2020,8129

FIRE PREVENTION DIVISION TENANT PLAN REVIEW
2000 USBC-VA (IBC) Effective October 1, 2003

PROJECT NAME: _____ TENANT Q NUMBER _____

SUBMITTER NAME: _____ PHONE #: _____

Your tenant plans were rejected on_____, 20_____ for the following reasons:

_____ 1. PROVIDE KEY PLAN SHOWING LOCATION OF SPACE IN BUILDING.
_____ 2. PROVIDE SIZE OF SPACE IN SQUARE FEET.
_____ 3. DEFINE CONTENTS OF SPACE; DEFINE ALL WORK TO BE DONE.
_____ 4. PROVIDE COMPLETED BUILDING INFORMATION SHEET.
_____ 5. DEAD END OVER 20/50 FEET NOT PERMITTED. IBC 1004.3.2.3.
_____ 6. TRAVEL OVER 75' FEET REQUIRES 2 REMOTE EXITS. IBC 1004.2.5.
_____ 7. FLOOR MUST HAVE MINIMUM 2 REMOTE EXITS. IBC 1005.2.1.
_____ 8. OVER 50 PEOPLE IN SPACE REQUIRES 2 REMOTE EXITS. IBC 1004.2.1
_____ 9. DOOR HARDWARE DOES NOT CONFORM TO IBC 1003.3.1.
_____10. STAIRS 3 LEVELS OR LESS SHALL BE 1 HOUR RATED. IBC 1005.3.2.
_____11. STAIRS 4 LEVELS OR MORE SHALL BE 2 HOUR RATED. IBC 1005.3.2.
_____12. EXIT LIGHTS REQUIRED. 1003.2.10
_____13. EMERGENCY EGRESS LIGHTING REQUIRED. 1003.2.11.
_____14. EXIT ACCESS CORRIDOR REQUIRES 1 HOUR RATING W/ 20 MIN DOORS, CLOSERS. 1004.3.2.1.
_____15. CENTRAL STATION MONITOR REQ'D. PROVIDE NAME OF SAME1004.3.2.1, 903.4.1., 901.6.
_____16. RANGE HOOD PULL STATION MUST BE 10 TO 20 FEET FROM HOOD.
_____17. PROVIDE FIRE DAMPERS. IBC 715
_____18. PULL STATIONS TO BE NO MORE THAN 5 FT FROM EXIT DOOR. IBC 907.3.1.
_____19. GUESTROOM/D.U. OR MALL TENANT DEMISING WALLS SHALL BE 1 HOUR RATED. IBC 708.1
_____20. TRANSFER GRILLES/DUCTS NOT PERMITTED IN EXIT ACCESS CORRIDOR. IBC 1004.3.2.4..
_____21. SEPARATION REQUIRED FOR MIXED USES. IBC 302.3.3..
_____22. PROVIDE FIRE ALARM SPEAKERS. IBC 907.9.2.
_____23. PROVIDE DETAILS OF DOOR HARDWARE/SPECIAL LOCKING (WIRING, LOCATION, & CUT SHEET). IBC 1003.3.1
_____24. PROVIDE FULL FLOOR PLAN. USBC 111.5.2.
_____25. PROVIDE CLEAR SCALED DRAWINGS. USBC 111.5.2..
_____26. PROVIDE SEATING PLAN (SCALED). IBC 1004.3.
_____ 27. PROVIDE MFG SAFETY DATA SHEETS FOR ALL SUBSTANCES. IFC 2701.2.
_____28. PROVIDE DESIGN NUMBER FOR FLOOR/CEILING OR OTHER RATED ASSEMBLY. IBC 601.
_____ 29. PROVIDE STROBES PER NFPA 72-99, 4-4.4.1

SEE OVER FOR ADDITIONAL COMMENTS: YES ____ OR NO ___

If you have additional questions please contact _____
at (703) 324-1640 or (703) 246-4806 Reviewer

FAIRFAX COUNTY FIRE PREVENTION DIVISION
SITE PLAN/SUBDIVISION REVIEW CHECKLIST

The following checklist is provided to serve as a general guideline for the purpose of identifying major items of review by the Plan Review Section of the Fairfax County Fire Prevention Division as required by the Fairfax County Public Facilities Manual, current edition, Chapter 9, Parts 1 and 2. PFM = Public Facilities Manual, USBC = Uniform Statewide Building Code

BUILDING DATA

1. Submitter name, address, telephone in full	USBC 111.5.1, 111.2. PFM
2. Building name, address in full	USBC 111.2
3. County site plan number (DPWES Tracking Requirement for Plan Control)	
4. Type of construction - IBC classification	PFM 9-0202.2C(2)
5. Use group - IBC classification	PFM 9-0202.2C(1)
6. Number of stories	PFM 9-0202.2C(10)
7. Building height in feet	PFM 9-0202.2C(10)
8. Foot print area of building	PFM 9-0202.2C(12)
9. Gross floor area of building	PFM 9-0202.2C(12)
10. If fire walls are to be built, label on plan with hour rating.	PFM 9-0202.2C(11)
11. State on plan if building is to be sprinklered, fully or partial.	PFM 9-0202.2C(7)
12. If sprinklered, show fire department siamese connection(s), fireline locations and size of pipe labeled (with correct valve arrangement).	PFM 9-0202.2C(9)
13. Fire Hydrants to be shown on site plan, water mains to be shown and size of pipe labeled.	PFM 9-0202.2C(5), 2C(4); PFM STD FH-1,2,3,4,5
14. Provide available fire flow at 20 psi and state source of information.	PFM 9-0202.2C(6), 9-0202.2F

EMERGENCY VEHICLE ACCESS

1. Adequate emergency vehicle access, turning radii	PFM 9-0202.2J(1)
2. Fire lanes to be labeled for curb painting and signage	PFM 9-0202.2J(5)
3. Buildings more than 5 stories or 50 ft. need front and rear access	PFM 9-0202.2J(2)
4. Dead-end fire lanes greater than 100 ft. require a turnaround	PFM 9-0202.2J(6)
5. Emergency vehicle access to within 100 ft. of main entrance to every building.	PFM 9-0202.2J(1)
6. Swimming pool access - to be within 50 ft. of edge of pool via 12 ft. wide access lane (must be posted fire lane) W/8 ft. wide personnel gates.	PFM 9-0202.2J(7)
7. Height restrictions blocking emergency access (low overhead like a canopy). 15 ft. minimum clearance required.	PFM 9-0202.2J(8)
8. Multi-story parking structure obstructions to access, also design live load to carry weight of fire department vehicles (450 psi live load).	PFM 9-0202.2J(9)

FIRE HYDRANT (FH) COVERAGE AND LOCATION

1. Minimum of 50 ft. distance from FH to any structure	PFM 9-0202.1I
2. Maximum 100 ft. from FH to siamese connection	PFM 9-0202.1K
3. FH coverage: Measured from the hydrant to the most remote point of vehicular access on the site, via the vehicular travel path:	PFM 9-0202.1L

Industrial building and warehouse ..... 250’
Schools, day care centers ..... 300’
Offices, commercial, church, hospital, nursing home 350’
Apartment, multi-family dwellings .....350’
Single family dwellings ..... 500’

4. Dead-end water main to FH distance:

6"(150 mm.) line ..... 380 ft max. distance
8”(200 mm.) line ..... 1550 ft max. distance
10”(250 mm.) line ..... 4600 ft max. distance
12”(300 mm.) line ..... 11,150 ft max. distance

5. No obstructions of FH within 4 ft. (plantings, fences, retaining wall, etc.) or of siamese within 10 ft.	PFM 9-0202.1J
6. All fire hydrants and water mains located in or on parking structures shall be protected from freezing (no heat tape).	NFPA 24, 8-2
7. FH location for single family dwellings:	PFM 9-0103.12

(a) lot line and/or
(b) curve of pavement

8. Siamese located on street front, address side of building.	PFM 9-0202.2C(9)
9. Siamese connection visible, accessible (no obstructions within 10 ft.)	PFM 9-0202.1J
10. Water supply must be available as soon as combustibles present on site.	SFPC 508.5.1.

HEIGHT AND AREA CHECK

1. USBC Table 503, height and area check.	USBC 503, PFM 9-0202.2C(10)

FIRE FLOW

1. Adequate fire flow (at 20 psi) to be available on site.	PFM 9-0202.2C(6), 9-0202.2F
2. Fireline properly sized.	PFM 9-0202.2C(8)

FIRE LANE DESIGNATION

1. Appropriate signage and curb markings indicated on all plans.	PFM 9-0202(FH-7)

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-003
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: DESIGNER REQUIREMENTS FOR PROJECT SITE PLAN INDICATION OF FIRE LANE MARKINGS AND SIGNS	

TO: All Contractors, Engineers, Architects, Designers, and Installers

The Fairfax County Public Facilities Manual requires the installation of fire lanes as part of the public utilities requirements. The Fairfax County Fire Prevention Code governs the dedication of the fire lane as well as the installation and sign specifications.

Posting and marking of fire lanes was required as of July 1986 for all sites regardless of Use Group classification. Under certain situations, additional areas may be designated as fire lanes as conditions warrant.

All fire lane information must be applied in a clear and orderly manner to the original mylar. All fire lanes must be shown on a site plan that is part of the site plan submittal set and all sets must have the fire lane plan included. The site plan scale can be no smaller than 1" = 30'. Street names and building addresses are to be shown. Plans submitted must indicate fire lanes designated in accordance with Fire Prevention criteria. A summary of the information necessary to create fire lanes acceptable to Fairfax County Fire and Rescue is on the following pages.

FIRE LANE DESIGNATIONS

Under Section 503.1 of the Fairfax County Fire Prevention Code, the Office of the Fire Marshal is authorized to designate fire lanes on public streets and on private property where necessary. This is to prevent parking in front of, or adjacent to, fire hydrants and to provide access for fire fighting equipment. Markings and signs are to be provided by the owner or agent of the property involved. Parking or otherwise obstructing such areas is prohibited.

I. HYDRANTS

A. Parking is prohibited within 15 feet. of a fire hydrant located along the curb line or edge of any public or private roadway. No special curb marking is required for enforcement.

B. Fire hydrants installed in parking lots are located within a fire lane. Curb and/or roadway marking is required in accordance with sections III and IV below.

II. FIRE LANES

A. Fire lanes shall be installed where required by the Office of the Fire Marshal. Fire lanes shall be marked with both sign and curb delineation per section III and IV below. Parking and traffic flow patterns shall be required as follows:

STANDARD REQUIREMENTS

Street Width Curb to Curb	One-way Traffic	Two-way Traffic
less than 24'.	no parallel parking on either side of street	no parallel parking on either side of street
24' to 29'	parallel parking on one side as decided by Fairfax County Office of the Fire Marshal	no parallel parking on either side of street
30' to 35'	parallel parking allowed on both sides of street	parallel parking on one side as decided by Office of the Fire Marshal
36' or greater	parallel parking allowed on both sides of street	parallel parking allowed on both sides of street

III. **SIGN SPECIFICATIONS**

A. Metal construction, 12" X 18"

B. Red letters on reflective white background with 3/8" red trim strip around entire outer edge of sign.

C. Lettering on sign to be: "NO PARKING OR STANDING FIRE LANE".

D. Lettering size to be as follows: "NO PARKING" and "STANDING" – 2", "OR" – 1", "FIRE LANE" –2 ½", arrows 1" X 6" solid shaft with a solid head 1 ½" wide and 2" deep.

E. Signs are to be mounted 7'. from the ground to the bottom of the sign unless otherwise directed by the Office of the Fire Marshal.

F. Posts for signs, when required, shall be metal and securely mounted, unless written permission for alternatives is obtained prior to installation from the Office of the Fire Marshal. Signs should be spaced as on approved plans. In long stretches the maximum distance between signs is 70 '.

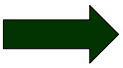
G. Other special signs as approved by the Office of the Fire Marshal.

IV. CURB DESIGNATION

A. All curbs or paved spaces designated as fire lanes shall be indicated by yellow paint as approved by the Office of the Fire Marshal. In areas without curbing, a 150 mm wide yellow stripe shall be applied to the edge of the pavement. Paint shall be highway traffic grade.

SIGN TYPE "A"

NO
PARKING
OR
STANDING
FIRE LANE



Standard wording with an arrow at bottom pointing to the right. One sign mounted parallel to the line of curbing or pavement edge at end of painted area.

SIGN TYPE "C"

NO
PARKING
OR
STANDING
FIRE LANE

Standard wording with an arrow at bottom pointing to the left. One sign mounted parallel to the line of curbing or pavement edge at end of painted area.

SIGN TYPE "D"

NO
PARKING
OR
STANDING
FIRE LANE

Standard wording with no arrow. Two signs, back to back, mounted perpendicular to line of curbing or pavement edge.

Fire lane markings, types of signs, locations, etc.

shall be subject to the approval of the Office of the Fire Marshal.

V. INSPECTION NOTICE

A. The following notice must appear on the site plans:

1. Fire Marshal field inspection necessary for final approval of fire lanes. Fire lanes must have final approval prior to request for occupancy permit

2. Owner shall notify the Fire Prevention Division, Fire Lanes Section, 4100 Chain Bridge Road, Fairfax, Virginia 22030 (703-246-4849) when fire lanes have been installed.

VI. OTHER NOTICES TO BE SHOWN AS NEEDED

A. Notes for fire department access lanes:

1. To be an all weather surface designed to support fire department vehicles.

2. To be identified as a fire lane at entrance.

3. To be maintained clear and accessible all year.

4. To have mountable curb at entrance.

5. Provide manufacturer's specifications and installation instructions for items used in access lanes to Fire Marshal's office prior installation.

6. Installation of access areas must be witnessed by Fire Marshal's Office. Please call for an appointment.

7. Provide approximately 4 feet high bollards with steel chain locked in between at curbside entrances to access lanes.

8. Access lanes must be clearly delineated for entire length and at ends by shrubs, lights, etc.

One copy of the approved site plans will be retained by the Fire Prevention Division for future reference.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-004
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: STANDARDS FOR INSTALLATION AND TESTING OF UNDERGROUND FIRE MAINS AND FIRELINES	

TO: All Contractors in Fairfax County
The following provisions for underground fire lines must be followed:

1. All installation and testing shall be conducted per NFPA 24 1995.

2. Fire lines shall have at least 4 feet of cover from the top of the pipe (Section A-8-1.1, Figure A-8-1.1).

3. All bends and tees shall have thrust blocks (Section A-8-6.2, Figure A-8-6.2.(a).

4. All piping through footers and under buildings shall have rods to a point at least 5 feet outside of building wall (Section A-8-6.2, Figure A-8-6.2(c). (w or w/o megalugs).

5. All rods shall be at least 5/8 inch. Number of rods will depend on the size of pipe (Section 8-6.2.2, Table 8-6.2.2(b).

6. All rods, nuts, bolts, washers, clamps, and other restraining devices shall be coated with a bituminous or other acceptable corrosion-retarding material (Section 8-6.2.7).

7. Thrust blocks shall be placed against undisturbed soil or rods shall be installed with thrust blocks (Section A-8-6.2, Figure A-8.6.2.1(a).

8. Rods secured on smooth pipe shall be anchored with 2 clamps, with one rod in each clamp (Section A-8-6.2.) Listed retainer-type fittings must be installed per manufacturer's instructions.

9. A visual inspection shall be made before pipe is covered. Appointment shall be made for Visual Inspection by calling 246-4821 to schedule the visual inspection.

10. The contractor shall remain responsible for locating and correcting any leakage. If pipe is covered, no drop in pressure during test is allowed. (Section A-9.2.3.2)

11. Firelines shall not be run under buildings (Section 8-3.1).

12. A hydrostatic test of 200 pounds or 50 pounds over static pressure, which ever is greater shall be conducted for 2 hours (Section 9-2.3.1).

13. Gauges used in performing acceptance tests on fire suppression systems witnessed by the Fire Prevention Division must meet the following criteria: a)The gauge shall be appropriate for the type of test; ie, air gauge for an air pressure test, a water gauge for a hydrostatic test. b) Air gauges shall have increment markings of two pounds or less. Water gauges must have increment marking of ten pounds or less.

c) The gauge shall be capable of registering pressures above the minimum pressure required during the test. The pressure registered during the actual test shall be at least the minimum required for the test and less than the maximum of the gauge register.

d) Gauges must be marked as accepted by UL and/or FM testing laboratories.

14. No valves shall be installed in fireline between street valve at water main and O.S. & Y valve inside of building.

15. Domestic water line take off shall be connected at least 5 feet outside of building with a 200 pound shut off valve on the domestic water line only.

16. All firelines shall be flushed with not less than a 4 inch opening (Section 9-1).

17. Site plans approved by this office showing size and location of pipe shall be on the job site before the inspection or test is performed. Cover sheet and site plan page shall have original reviewer's stamp and approval.

18. Galvanized spool piece (potable water). The procedure for installing a galvanized pipe between the ductile iron fire line and the OS&Y valve is as follows:
    a) If a spool piece is used between the fire line stub and the OS&Y valve to raise the valve off of the fire line stub, then it shall be galvanized pipe or shall be rated per AWWA C104,C110 for potable water. This spool piece may be hydrostatically tested as part of the underground, or part of the sprinkler riser.
    or
    b) If the OS&Y valve is rated by the AWWA as suitable for connection to a potable water system, this valve is a suitable transition piece between the fire line stub and the check valve. This OS&Y valve may be attached directly to the fire line stub if there is adequate clearance for proper operation of the valve, and then no galvanized pipe is required.

19. Above Items shall be inspected by Fire Marshal prior to any back fill.

20. All test and permit fees shall be paid before an inspection or test is performed.

21. Electrical ground wires shall not be connected to underground fireline (Section 8-3.5).

22. Backfill shall be well tamped, free of rocks, and free of corrosives (Section 8-7).

If you have any questions or need additional information, please contact the Engineering Section or Testing at (703) 246-4821.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-005
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: SPRINKLER SYSTEM WATER SUPPLIES	

TO: All Sprinkler Designers,
Contractors, and Installers

Effective July 1, 1986, all automatic sprinkler hydraulic designs submitted to this office shall provide for:

1. Flow test data for an on-site hydrant, provided by and attested to by the water supplier to the site concerned, with date of flow test. If an on-site hydrant is not available for the test, the closest available hydrant shall be used.

2. Elevation, tax map number, and street location of the test hydrant.

3. An adjusted water supply curve for the test hydrant based on the low hydraulic grade line as provided by the water supplier. High and low hydraulic grade lines shall be obtained from the water supplier and shall be referenced to a specific date. Adjustment of the water supply curve at the test hydrant by use of the low hydraulic grade shall consist of adjusting the entire water supply curve by subtracting the elevation of the test hydrant from the hydraulic grade, converting the difference to psi, and if the psi values obtained from the flow test (static and residual) are greater than the low hydraulic grade, dropping the test hydrant water supply curve to the level of the low hydraulic grade.

   Example: S = 97, R = 30, Q = 800, test elev. - 400 feet
   Low H.G.L. = 600 feet
   600 - 400 = 200 feet = 86.62 or 87 psi

   Hence use S = 87, R = 20, Q = 800 as design curve at test hydrant location.

4. A minimum safety factor of (10 psi) below the (adjusted) water supply curve. This safety factor will not necessarily accommodate all potential increases in water supply requirements due to tenant fit outs. Final responsibility for a long and short term system adequacy rests with the designer/contractor/installer.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-006
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: FIRE PUMP CALCULATIONS	

TO: All Sprinkler Designers,
Contractors, and Installers

In all buildings requiring fire pumps, a set of fire pump calculations will be required. This calculation shall prove that sufficient pressure will be available at the time of the fire pump test. The calculation shall prove that 20 psi (138 KPa) is available at the suction side of the fire pump while the pump is operating at 150 percent of its rated capacity (Per Virginia Department of Environmental Quality requirements for public water supply). Fire pump calculations must take into account the low HGL for the site, come in under water supply curve and comply with EPR-005, 007.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-007
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: INTERCONNECTION OF SPRINKLER/STANDPIPE RISERS AND HYDRAULIC CALCULATIONS	

TO: All Architects, Consulting Engineers, Designers,
Contractors and Installers in Fairfax County

It remains the policy of the Fairfax County Fire Prevention Division that interconnection of per floor sprinkler take-offs between two bulk risers should be provided in all structures three levels/stories and above. Exceptions to this practice will be considered on a per case basis for structures of three levels or less which are less than 10,000 square feet in area per floor.

Hydraulic calculations for all systems should consider only a single, most remote riser and shall calculate the full sprinkler (and/or standpipe) demand back to test via that riser and associated bulk piping. Dual riser feeds should not be calculated for simultaneous supply of a giving remote design area. The above practice insures the adequacy of protection in all structures if one standpipe riser is shut down for maintenance, repair, or tenant work. If the owner chooses not to interconnect risers and to supply all floors from a single riser, this office will have to have on file a notarized letter from the owner stating that he will vacate the building whenever said riser is not in service. Unless such a letter is on file, review of sprinkler plans cannot be undertaken.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-008
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: HYDROSTATIC TESTING OF SPRINKLER TENANT WORK	

TO: All Sprinkler Contractors

To provide a uniform policy governing hydrostatic testing for sprinkler tenant work, the following guidelines are established. If the tenant work involves:

1. The addition or relocation of five heads or more.
2. The addition of ten or more new fittings.
3. The addition of twenty feet or more of pipe (nipples shall not be counted as pipe length).
4. Or any combination of the above.

Then a hydrostatic test will be required. Contractor shall remain on site in occupied buildings during the hydrostatic test. Any work falling within Items one through four shall require a visual inspection, prior to any close-in.

Gauges used in performing acceptance tests on fire suppression systems witnessed by the Fire Prevention Division must meet the following criteria:

1. The gauge shall be appropriate for the type of test; ie, air gauge for an air pressure test, a water gauge for a hydrostatic test.
2. Air gauges shall have increment markings of two pounds or less. Water gauges must have increment marking of ten pounds or less.
3. The gauge shall be capable of registering pressures above the minimum pressure required during the test. The pressure registered during the actual test shall be at least the minimum required for the test and less than the maximum of the gauge register.
4. Gauges must be marked as accepted by UL and/or FM testing laboratories.
5. Only one gauge per test per inspector will be permitted.

A. Hydrostatic test pressures for sprinkler systems shall not exceed 210 psi.
B. All new piping shall be hydrostatically tested.
C. Standpipes shall go up with each floor. A standpipe with valves having 2 ½" x 1 ½" cap shall not be more than one floor below the highest forms or staging. There shall be a fire department connection at the first floor level. This connection shall be marked so it can be readily and easily accessible at all times.
D. All standpipes shall be flushed (prior to charging or connection to floor system).

WAREHOUSE STORAGE LIMITATIONS

BUILDING
NAME:_____

BUILDING
ADDRESS:_____

PROJECT:_____

OWNER/TENANT:_____

SPRINKLER
CONTRACTOR:_____

SPRINKLER SYSTEM DESIGNED TO
NFPA:_____

STORAGE OF CLASS:_____ COMMODITY

MAXIMUM STORAGE HEIGHT:_____FEET

INSIDE HOSE STATIONS PROVIDED?_____ YES _____ NO

We, the undersigned, by our signature(s) understand the limitations of this building/tenant space. In addition, we realize that storage in excess of the height mentioned is prohibited; storage of a greater hazard commodity is likewise prohibited.

BUILDING OWNER_____DATE
_____

TENANT_____DATE_____
_____

PLEASE NOTE:

Failure to submit this form will be grounds for rejection of plans by the Fire Prevention Division, Fairfax County, Virginia.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-009
	ISSUED BY: REVISED DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: STANDPIPE CALCULATIONS	

TO: All Sprinkler Designers, Contractors, and Installers

How to calculate standpipes according to IBC 905, NFPA 14-96.

In all buildings requiring standpipes, two sets of calculations are necessary to size riser piping, supply piping and the water service piping.

The set of calculations sizes the supply piping to the standpipes. According to 14-96, 5-9.1.1, 5-9.1.2, this requires a minimum flow of 500 gpm for the first riser and 250 gpm for each additional riser up to 1250 gpm.

A residual pressure of 100 psi needs to be maintained at the top most outlet of each riser while flowing the minimum quantities of water required in the above paragraphs. The fireman's hose is to be supplied by the pumper with the following pressures and flows at the siamese connection: 200 psi @ 0 gpm, 199 psi @ 750 gpm, 150 psi @ 1250 gpm. For buildings over 150 feet in height, standpipes must be supplied by the on-site fire pump.

Please note that sprinkler calculations still need to be submitted along with these calculations.

Sprinkler and standpipe calculations must take into account the low HGL for the site, come in under water supply curve and comply with EPR-005, 007

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	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-010
	ISSUED BY: REVISED DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	

SUBJECT:
INSTALLATION OF PRESSURE REDUCING/REGULATING VALVES AT STANDPIPE FIRE HOSE OUTLETS

TO: All Architects, Engineers, Designers and Contractors

The following policy is adopted to define the type of fire hose pressure reducing valves to be installed in Fairfax County. (14-96, 5-8.2)

Pressure reducing/regulating fire hose valves shall be capable of delivering a residual flow pressure between 150 psi to 170 psi, at 250 gallons per minute. This standard shall be applied to all class I and III systems.

Pressure reducing/regulating fire hose valves shall be capable of external adjustment to higher pressures by the fire department. The external mechanism for reducing or regulating shall be capable of being removed completely, allowing the fire hose valve to function fully open.

Installation of pressure reducing/regulating valves shall not occur until:

1. Approved by the engineering plans review section of the fire marshal's office.
2. Certification is received from the manufacture on testing and pressure settings using 1 and 3/4 inch hose with a 100 psi tip pressure.
3. Valves are tested on site by the installing contractor and witnessed by the fire marshal's office.
4. Valves, once adjusted and approved, shall be fixed with a plastic break- away seal. This seal shall contain the date of test, valve identification and contractor conducting test.

Once installation has occurred, the installing contractor shall forward a report to the fire marshal's office with valve identification (ie. Numbering system), set points, location and floor level.

Valves shall be inspected visually each year to ensure that the settings have not changed and there is no damage to the valves. A flow test is required every 5 years per NFPA 25. If there is a question due to damage, change of settings, missing tag, etc, the valve shall be removed and retested. The retest shall be witnessed by Fire Prevention Division personnel.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-011
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: SPRINKLER PROTECTION IN ELEVATOR HOISTWAYS AND MACHINE ROOMS UNDER USBC 2002.	

TO: All Architects, Engineers, Designers and Installers

In order to satisfy the requirements of ASME A17.1, Section 102.2(c), 1996 Edition, IBC 3006.5, NFPA 72-99, 3-8.15 and the 1999 NEC Article 620-51(b), the following method of removing electrical power from elevator machinery prior to the activation of hoistway or machine room sprinklers shall be acceptable:

1. Place 160^{o} or 190^{o} F rated heat detectors at the top of the hoistway and/or in the machine room. These heat detectors will be part of the building fire alarm system. The detectors will be connected directly to the shunt trip disconnect(s) to the affected elevator(s). Activation of these heat detectors disconnects power to the affected elevator(s).(per NEC 620-51). NOTE The fire alarm systems supervises the elevator power circuit as well as the initiating device circuit.

2. Place 212^{o} F rated, standard response sprinkler heads near the heat detectors at the top of the hoistway and/or in the machine room (13-99, 5-13.6.2).

This procedure allows for adequate sprinkler protection to elevator hoistways and machine rooms as well as meeting the concerns associated with water application to live elevator machinery. It is applicable to structures built under the 2000 Virginia Uniform Statewide Building Code.

Note: See NFPA 13-99, 5-13.6. for exception which allows omission of head at top of hoistway (not machine room). Also see 13-99, 5-13.6.1 for elevator pit sprinkler and exceptions to same.

The above assumes that smoke detectors per ASME A17.1, 211.3 & NFPA 72-99, 3-9.3. are present for recall.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-011A
	ISSUED BY: REVISED DATE: OCTOBER 1, 2002 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: RECALLED SPRINKLER HEADS (REF SFPC 901.6)	

To: Building Owners, Management Companies, Homeowners' Associations, and Other Concerned Parties

After review and discussion with the Systems Acceptance Section the following procedure will be effective immediately regarding recalled sprinkler heads. This procedure is for "one for one" sprinkler head replacement only. Any other changes to a fire protection system must go through the normal Plans Review process.

(1). The County will require a permit be issued as usual but will not charge for it. The Permit Section already does this.

(2). The Sprinkler contractor must submit to Plans Review the old and new "cut sheets" for the sprinkler heads at the permit location. They will be reviewed by the Plans Review staff and approved or denied as appropriate replacements for use at the permit location. The charge for review is at the normal rate.

(3). Upon completion of the sprinkler head replacement, the contractor will call Systems Acceptance (70-246-4821) to schedule a free inspection of the replaced heads.

FIRE PUMP/STANDPIPE TESTING AND RE-TESTING

All fire pumps will be acceptance tested in accordance with NFPA 20-96. All controllers shall be signed off by the electrical inspector per NFPA 20-96 (Chapter 7) and NEC-99 695. Fire pump retesting will be conducted in accordance with NFPA 25-98.

Prior to the fire pump acceptance test, all hydrostatic tests for shell building bulk piping shall be completed.

All fire pump test gauges shall be of approved (UL/FM) type or on-site documentation of calibration must be provided. (see NFPA 20, 11-2.6.1).

Standpipe flow test will be done in those buildings having standpipes, at the time of fire pump acceptance testing. Gauge must be provided at the top of standpipe riser per NFPA 14-96, 3-6.1.

FAIRFAX COUNTY FIRE PREVENTION DIVISION
STUDY GUIDE TO CODE REQUIREMENTS FOR FIRE ALARM DEVICES AND SYSTEMS
IBC 2000 with 2001 Supplement & IFC 2000 with 2001 Supplement

NOTE: This list DOES NOT replace the requirement for everyone to consult and comply with the code. It is a study and Reference aid ONLY.

I. INSPECTIONS, TESTS AND MAINTENANCE

A. REGULAR INSPECTIONS/TESTS

Device	Frequency	Code Ref
Flow Switch	Quarterly	NFPA 25, Table 2-1.
Fire Pump	Weekly	NFPA 25, 5-1
Manual Pulls	Annual	NFPA 72-99, 7-2.2
All Automatic Dev.	Annual	NFPA 72-99, 7-2.2
Smoke Control Syst	Twice per Year	IFC 909.2.1

B. ACCEPTANCE TESTS -- ALL COMPONENTS, ALL FIRE ALARM DEVICES/SYSTEMS (IBC 907.16)

II. DEVICES: Alarm & Supervision Req's under VIRGINIA UNIFORM STATEWIDE BUILDING CODE, 2002 Edition

	Item/Device	Code Section	Comment
A.	Central Stn Hookup	IBC 901.6	Spk + Unrated Corridors A,B,E,F,M,U Uses Suppression syst in A,B,E,I,M,R Uses Any Req'd System High-Rise Bldgs
B.	S.D.'s, Hospitals, Automatic Syst., H-Use	IBC 907.2.6 IBC 908	Corridors
C.	Sprinkler Flow Alarm & Supervise	IBC 901.6.1, 903.4.2 IBC 903.4 NFPA 72, 3-8.3.3	Exterior Req'd Dry Pipe hi/lo air, etc.
D.	Duct Detectors	IMC 606, IBC 907.11	Return Ducts Over 2000 CFM Supervision Req'd, Access Req'd
E.	Visual Alarms (& Handicap)	IBC 907.9.1	to Meet/UL 1971 & ANSI/NFPA 72-99, Ch. 4
F.	Audible Alarms	IBC 907.9.2	Audibility Req'd in All Spaces
G.	Fire Pump	NFPA 20, 7-4.7 NFPA 72, 3-8.3.3.2	
H.	Elev Lobby/Hoistway Machine Room S.D.	NFPA 72-99, 3-9.3 ANSI A17.1-96),211.3	(Verification req'd) Dedicated Loop Req'd.
I.	Voice Alarms	IBC 907.2.12.2, 907.2.13.2, 907.2.20	High-Rise; Any Bldg w/ Atrium and of A, E, or M Use; Mall >50k sq ft
J.	Atrium S.D.'s	IBC 907.2.13	Any Atrium with Smoke Exh/Control
K.	Damper Control	IBC 715.3.2.1	555S Type Dampers w/S.D.'s
L.	Sleeping Area S.D.'s	IBC 907.2.10	
M.	Releasing S.D., H.D.	NFPA 12A, 2-3.1 NFPA 17, 3-7.4. NFPA 17A, 3-2.1.5	Connected to Bldg Alarm (IBC 904.3.5) (e.g. Halon, Dry/Wet Chem)
N.	Refrigerant Detector	IBC 908.6	

III. OCCUPANCIES (USE GROUPS) REQUIRING ALARM SYSTEMS (See Code for some Exceptions)

A.	MANUAL SYSTEM	IBC 907	A>300; B>500 or >100 above/below grade; Schools, F=> 2 stories with 500, M-use with 500 or >100 above/below grade. I Uses, Hotels, Motels, Apartments 3 Stories & Up
B.	AUTOMATIC SYSTEM	IBC 907	I-Use; Hotels, Motels, All High-Rises, Special Amusement Building
C.	SMOKE CONTROL	IBC 909	Malls, Atriums

IV.	POWER SUPPLY	IBC 2702 NFPA 72-99, 1-5.2	
V.	WIRING	NEC 760	FPL or nonpower limited

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-013
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: FIRE ALARM TESTING OF NON HIGH-RISE BUILDINGS	

TO: Architects, Engineers, and Contractors

1. Prior to installation of fire alarm systems, three sets of complete fire alarm system plans shall be submitted for approval to the Fire Prevention Division. The submittal shall contain electrical floor plans, manufacturers cut sheets for all devices, wiring riser diagrams, operational description of system, any mechanical risers or floor plans necessary to evaluate controls and status indicators, annunciator panel diagram including status indicators and controls for mechanical equipment where necessary; all submittals shall contain verification of the listing of all components.

2. Every fire alarm system shall be pre-tested by the installing contractor or his representative before the Fire Marshal's acceptance test begins. This will help to alleviate multiple retesting and free up more appointment time for other tests to be held.

3. To set up fire alarm acceptance tests, please call the Fairfax County Fire Prevention Division at 246-4821 at least 14 days prior to test.

4. All fire alarm annunciator panels, control panels, and associated equipment are to be "buttoned up" with no loose wire hanging before the Fire Marshal's acceptance test will be conducted. Test area shall have completed painting, carpeting, etc, in final form. Areas with smoke detectors shall be free of dirt, dust, and sanding residue.

5. During testing of the fire alarm systems the following installers or representatives should be present to assist in testing the fire alarm systems if applicable:

    A. Fire Alarm installer
    B. Sprinkler installer
    C. Elevator installer
    D. Air handling units installer (duct smoke detector)
    E. Fire alarm control panel representative
    F. Fire alarm panel programmer

6. The acceptance test will not be conducted without approved Fire Marshal fire alarm submittals (cut sheets and electrical floor plans, etc.) on site.

7. All permit and test fees shall be paid before the test.

8. The Fire Marshal's acceptance test will include but is not limited to the following:

   A. All smoke detectors will be tested with smoke.

   B. All heat detectors will be tested.

   C. All pull stations will be tested.

   D. All flow switches (i.e., sprinkler, standpipe, and main fire line) will be tested by actual flowing of water. Sprinkler flows will be tested through a test orifice equal in size to the smallest sprinkler orifice in the system. Sprinkler flow retard switch shall be adjusted to no less than 20 seconds retard to avoid false alarms due to water hammer.

   E. All duct smoke detectors will be tested. Air handling units are to be "running" during duct smoke detector test to witness "shut down" of unit when duct smoke detector activates.

   F. All smoke removal systems reports on testing by Special Inspector per IBC/IFC 1704 shall be approved by the Fire Prevention Division.

   G. Trouble circuits will be "spot checked" periodically during the tests, and the alarm system will be checked with the system in "trouble".

   H. Any concealed detector must have a remote readily visible red LED light and descriptive label.

   I. Floor call buttons for elevator shall be tested while elevator is in Phase I and Phase II. Elevator inspector approval must be obtained before testing of recall.

   J. If the sprinkler System is divided by zone, annunciation of sprinklers will be by floor, device, (sprinkler flow), and proper zone. If the sprinkler is a "looped" system covering an entire floor no zone annunciation will be accepted. Only floor level and device (sprinkler flow) shall annunciate. If system is zoned, the sprinkler zones shall correspond with fire alarm zones.

K. High/low air pressure in the dry sprinkler system shall set off a trouble light and a buzzer on the annunciator panel. A separate circuit shall be on the control panel showing hi/low air pressure.

L. All suppression, detection devices, and equipment in the building shall be tied to the alarm system and tested.

M. All Digital Alarm Communication Transmitters (Dialers) shall be tested. Approved DACT plans shall be on site for test. UL/FM central station listing documentation required. Central station shall be on line with no alarms or troubles for 24 hours prior to test.

N. Generator (if present) shall show fault when turned off or when load side breaker to building is open.

O. All ceiling tile, floor covering, and interior finish shall be in place for testing of audibility and visibility. Visual appliance coverage shall be complete. For shell building tests, interior walls shall be prime coated and floors broom swept. When fire alarm tests are to be conducted in occupied buildings, the building shall be posted 24 hours prior to the test to notify the occupants.

P. Detection devices shall not be installed until after construction clean-up of all trades is complete. Detectors that are contaminated shall be cleaned or replaced per NFPA 72-99, 2-3.6.1.3.

Q. R-2 occupancies with copper loops under breezeways will be required to conduct flow tests from remote points. 13R-99, 3-1.4.

All testing equipment (smoke machines etc.) shall be supplied by the contractor. Where required, UL approved Central Station shall be on line, and is part of the Fire Alarm System. Central Station documentation (listing, etc) is required.

If we can be of any further assistance, please call the Fire Prevention Division, Monday through Friday from 8:00 a.m. to 4:30 p.m. at (703) 246-4821.

FAIRFAX COUNTY NON-HIGH-RISE
ANNUNCIATOR PANEL LAYOUT
THIS IS A SAMPLE ONLY (Revised January, 2003)
FIRE PREVENTION DIVISION
(703) 246-4800

POWER ON o (Green)

MANUAL STATION	o		PENTHOUSE	(RED)-	o
SMOKE DETECTOR	o		5TH.FLOOR		o
(Spare)			4TH.FLOOR		o
HEAT DETECTOR	o		3RD.FLOOR		o
ATRIUM SMOKE DETECTOR	o	(RED)	2ND.FLOOR		o
ELEVATOR LOBBY/MACHINE ROOM	o		1ST.FLOOR		o
SMOKE DETECTOR	o		CELLAR		o
SPRINKLER FLOW	o		GARAGE #1 LEVEL		o
STANDPIPE FLOW	o		GARAGE #2 LEVEL		o
FIRE SERVICE LINE	o		STAIRWAY A		o
HALON OR PRE-ACTION SYSTEM	o		STAIRWAY B		o
KITCHEN HOOD	o		STAIRWAY C		o
DUCT DETECTOR	o	(Amber)	STAIRWAY D		o
VALVE TAMPER	o	(AMBER)			
DRY PIPE HI/LO AIR	o	(AMBER)			
FIRE PUMP RUN	o	(GREEN)	GENERATOR RUN	(GREEN)-	o
FIRE PUMP FAULT	o	(AMBER)	GENERATOR FAULT	(AMBER)-	o

TROUBLE	TROUBLE	TROUBLE	RESET	TEST
o(AMBER)	o	o(KEYED)	o(KEYED)	o(KEYED)
LIGHT	BUZZER	SWITCH	SWITCH	BUTTON

The above drawing is a sample: number of floors, garage levels, etc., may vary. Certain lights may be omitted or additional ones may be needed. This sample is not for a high-rise building.

1. Panel to be located at main lobby.
2. Annunciator shall indicate type of alarm received by device, indicating floor level.
   Subzoning required when floor area exceeds 20,000 square feet.
3. Layout of building may be required for zoning purposes and identification of areas.
4. Submit 3 sets of plans, riser diagrams, cut sheets, and annunciator panel diagram for approval.
5. Ring back required on trouble and reset switch, if it is not a momentary switch.
6. Sprinkler annunciation shall be by floor and device (sprinkler flow) only.
   Exception:
   1) if sprinkler system piping is separated into zones and not cross-connected between zones, and
   2) sprinkler system zones coincide exactly with graphic fire alarm zoning.

Note: Generators are not mandatory on low-rise bldg. If present, they shall annunciate as above.

FAIRFAX COUNTY, VIRGINIA
FIRE PREVENTION DIVISION

HIGH-RISE CENTRAL FIRE CONTROL SYSTEM
2000 CODE

I. Definition: In all buildings having floors used for human occupancy which are greater than 75 feet above the lowest level of Fire Department vehicle access. — IBC 403.1

II. All fire alarm and detection systems, fire and life safety system controls and system supervision shall conform to the "High-Rise Buildings" section of the current Virginia Uniform Statewide Building Code (IBC) and to the referenced editions of applicable NFPA documents including but not limited to: 13, 14, 20, 37, 70, 72, 110

III. Fire Control Room (Fire Command Station) — IBC 403.8, 911

A. Construction and Size-min 96 ft^2 & min 8 ft in any direction — IBC 911

1. One (1) hr. rated enclosure w/ 1 hr "B" label door. — IBC 911.1
2. Sized to allow minimum of 3 feet working clearance to front of panels. (NEC 110) — 72-99, 3-8.4.1.3.3.2
3. Clearance at rear and top of panels per equipment manufacturer's recommendations. — NEC 110-13
4. Provided with adequate ventilation necessary for removal of heat generated by equipment. — NEC 110-13
5. Electrical, mechanical, or plumbing equipment other than those associated with the system shall not be located in the Fire Control Room.
6. 1 copy of building plans to be in Fire Control Room.
7. Must be sprinklered.
8. Provide smoke detector.
9. Layout must be approved
10. Provide 5 sets of master keys in room.

B. Location — IBC 911

1. Located at main lobby entrance.
2. Preferably located on an outside wall.
3. Not located next to or adjacent to boiler rooms, transformer rooms, etc.

IV. Shop Drawings and Specifications

A minimum of 3 sets of drawings and specifications shall be submitted for review and approval. All equipment shall be listed by a recognized testing authority for its intended use. The submittal shall include the following: — IBC 907.1.2, IBC 911

A. Quantity, manufacture, model number, etc. of each device to be installed. (materials list) — IBC 907.1.1

B. Engineering cut sheets and specifications for each type of device. Specifications on type of wire to be used (NEC 760). — IBC 907.1.1

C. Wiring diagrams, annunciator panel detail, fan control panel detail, voice/paging panel detail.

D. Floor plans showing the location of each device including legend.

E. Operational description of system, including overall program matrix.

F. Any mechanical reference sheets (e.g. riser diagrams, fan schedules, etc.) pertaining to the system.

G. A complete operational description, including volume calculations, for all smoke control and pressurization systems, including a proposed test protocol and testing measurement locations.

H. Provide generator load breakdown/summary. Battery calculations.

It is suggested that submittal of atrium or other smoke control design calculations and sequences be submitted prior to or simultaneously with building permit drawings to insure timely feedback to the designer. IBC 909, IBC 404.4

V. Central Control Station: Alarm Detection, Communication and Status Indication;

A. Receive fire alarm indication and annunciation from:

1.	Manual fire alarm stations	72-99, 3-9.4
2.	Heat detectors	IBC 3003.2, 907.2.12.1
3.	Smoke Detectors (by location and zone: elevator lobby detectors and atrium detectors to be on individual zones: see NFPA 72-99, 3-9.3 ASME A17.1, 211.3)	
4.	Duct detectors	IMC 606, IBC 907.2.12.1(2)
5.	Sprinkler flow switch (atrium sprinkler to be on separate zone)	72-99, 3-8.3.2.4

B. Receive or Transmit Communications from:

1.	Fireman's 2-way telephone (dedicated phones, NOT jacks)	IBC 911, 907.2.12.3
2.	Public telephone - in Fire Control Room	IBC 911.1(10)
3.	Voice Alarm and Public Address Systems	IBC 907.2.12.2

C. Receive status indication from:

1.	Fire pump (run or fault)	20-99, 7-4.7
2.	Emergency power system (run or fault)	IBC 911.1(9)
3.	Elevators (recalled or not) (status and location)	IBC 911.1(4)
4.	Stairway pressurization system (on, off)	IBC 911.1(4)
5.	Smoke control systems (on, off)	IBC 911.1(6)
6.	Air handling systems (on, off)	IBC 911.1(5)
7.	Stairway door unlock (open=green, locked=red)	IBC 911.1(7)

The above shall be provided with a status indicator light as follows: ON (green); OFF (red); Elevator emergency recall (yellow).

D. Receive and Annunciate Supervisory and/or Trouble Indications:

1.	Tamper switches on sprinkler, fire pump and standpipe water control valves (supervisory)	72-99, 2-9
2.	Electrical circuits and wiring	
3.	A, B, C above except public telephone	
4.	Voice alarm system and all components	
5.	Standpipe flow switch (trouble light)	
6.	Fire pump flow switch (trouble light)	
7.	Generator (trouble light)	
8.	Hi/Lo air pressure for dry pipe systems (supervisory signal)	

E. Operational Controls

Operational controls shall be provided for and located in the Fire Control Room for the following: IBC 911

1. Voice alarm and Public Address System
2. Fireman's 2-way communications system
3. Fire pump (ON, auto only)
4. Emergency generator (ON, auto only)
5. Stairwell pressurization system (Separate controls for each stairwell required) (H-O-A)
6. Smoke control systems (H-O-A) (Separate controls required for each system, on per floor basis)
7. Off normal conditions on H.O.A.'s shall sound a trouble buzzer.
8. Air handling systems (Separate controls required for each system, on a per floor basis (H-O-A))
9. Elevators

VI. Operational Requirements

A. Receipt of any alarm signal shall:

1.	Initiate a signal to an approved Central Station (or to a system conforming to NFPA 72.)	IBC 907.14
2.	Activate the voice alarm system and the visual fire alarm indicators on the floor level where the alarm was initiated, the floor directly above and below, and the elevator car and stairwell speakers.	IBC 907.2.12.2
3.	Activate the stairwell pressurization system.	IBC 1005.3.25, 909.20.5
4.	Activate mechanical smoke control (if provided) on the fire floor, except if signal originates from a manual pull station. (NOTE: Per floor smoke control is often not found today; AHU controls are still necessary).	

5.	If the signal originates from an elevator machine room or elevator lobby smoke detector, activate the elevator recall system. If the primary floor level of return is the floor of alarm origin, the elevators shall be automatically directed to the secondary floor level of return.	ASME A17.1-96, 211.3b IBC 3003.2; 72-99, 3-9.3

B. Design and Installation

1. Voice Alarm and Public Address System

a.	The alarm and communication system shall be designed and installed so damage to any terminal unit or speaker will not render more than one zone of the system inoperative.	IBC 907.8.2, 72-99: 1-5.7.3. 3-8.4.1.1.3
b.	The system shall be continuously electrically supervised against component failure of the audiopath including amplifiers, speaker wiring, switches, and electrical contacts and shall detect opens, shorts and grounds which might impair the function of the system. Both a visual and audible trouble signal shall operate at a location as indicated in Section VI A-1 above.	1-5.8.6 72-99, 1-5.8.
c.	All wiring shall be installed in metallic tubing or approved equivalent. The installation shall be in a manner which will afford the maximum protection against the effects of fire and other which will facilitate repair or replacement.	NEC 760, 72-99, 3-8.4.1.1
d.	The system shall be installed so trouble can be readily detected by floor and device.	
e.	There shall be a maintained contact push button and visual indicator for each floor level or zone. An "all call" position is also required. operation shall be by selective basis, i.e., one zone, any combination of zones, or by all zones. One set of maintained push buttons for the fire alarm system and one set for the public address system is required.	72-99, 3-8.4.1.3.5
f.	Zones shall be limited to a maximum of 22,500 square feet. In no instance shall a zone encompass more than one floor level. Floors shall alarm on a per floor basis and alarms shall annunciate by floor, zone and device.	IBC 907.8
g.	Speakers shall be installed in the following locations: elevators, elevator lobbies, corridors, exit stairwells at every 3rd level, rooms or tenant spaces exceeding 1,000 square feet, dwelling units in apartments, and hotel guest rooms or suites.	72-99, 3-8.4.1.3.5.6
h.	Speakers shall be listed by a recognized testing authority for fire alarm use. Speakers shall provide the sound levels specified in NFPA 72G at all locations in the structure.	IBC 907.9.2, 72-99, 4-3.2
i.	Wall mounted speakers shall be installed so sound reproduction is in one direction only. In no instance shall corridor speakers be installed so sound reproduction is directed towards the opposite wall	72-99, 4-3.1.5 4-3.2

j. Speaker spacing shall be in accordance with the recommendation of the manufacturer, the listing authority, and above all, to provide the required sound reproduction listed under item "h".

k. The pre-taped message shall be: "There is a fire emergency in the building. You are to leave the building by the nearest exit or exit stair. Do not use the elevators." Visual indication that the message is being delivered to the required zones shall be installed at the control panel.

l. Failure of the pre-taped message for any reason shall cause the fire alarm signal to sound continuously in the required zones until the system has been restored to normal or is silenced at the control panel.

m. The alarm signal shall be the slow whoop signal. The alarm signal shall sound for a maximum of 15 seconds followed by the pre-taped message. Both shall sound alternately in sequence until silenced at the control panel or when the fire alarm panel is restored to normal. There shall be no more than a 5 second pause between the alarm signal and the pre-taped message for each revolution.

n. Upon activation of any manual alarm or automatic fire detection or suppression device the fire alarm system shall operate on the floor level of origin, the floor level directly above and below, in all elevators and in all stairwells. Atriums shall be alarmed as one space, including all levels open to the atrium.

o. The system shall be designed so the fire alarm signal and pre-taped message may be transmitted to any floor while voice messages are being transmitted to other floors. If the voice instructions are required to be transmitted to any floor, the fire alarm signal and pre-taped message shall automatically restart or continue in the required sequence after the voice transmission is completed.

p. The microphone for the transmission of voice messages shall be hand-held type with a 5 foot cable. The cable shall be permanently connected at both ends with the microphone hanger mounted on the front of the control panel.

q. Visual indicators (flashing lights) with the word "FIRE" shall be installed above each manual fire alarm station, in elevator lobbies, and exit corridors per IBC 907.3.1. Letters shall be a minimum of 1/2 inch block letters on a contrasting background.

r. Alarm tone generators, preamplifiers, power amplifiers and power supplies shall be continuously supervised. Backup units shall automatically provide the required signaling in the event of component failure. 72-99, 1-5.8.6

2. Fire Department Communication System

a.	Fixed telephone (NOT jacks) shall be located at the following locations: each elevator car, elevator lobbies, and the entry inside the stair enclosure at each floor level (also Fire Pump Room and Elevator Machine Room).	IBC 911, 907.2.12.3 72-99, 3-8.4.1.3.7
b.	Telephone shall be of the press-to-talk type and located in a locked telephone cabinet with breakaway safety glass or plexiglas panel. Cabinets may be wall mounted or recessed. Cable shall be capable of withstanding elevated temperatures.	
c.	Each cabinet shall be provided with an engraved or permanently attached sign reading, "FIREMAN'S TELEPHONE - FIREMAN'S USE ONLY". Letters shall be a minimum of 2 inch block letters on a contrasting background.	
d.	The phone at the Fire Control Room shall be mounted on the front of the control panel without any enclosure.	
e.	Removal of any telephone from its cradle will activate an audible and visual indicator shall remain lit until the telephone is returned to the cradle in a normal position. The fireman's telephone shall be annunciated by floor level and zone (See item "f" under Voice Alarm and Public Address Systems).	
f.	The control unit and all wiring for the system shall be continuously supervised for power failure, open, shorted or grounded conditions which would affect the intended operation or performance. Detection of any fault in the system shall activate an audible and visual trouble signal.	72-99, 3-8.4.1.3.7.4
g.	The system shall be designed to provide power for the simultaneous use of 5 telephones while maintaining an audible level of communication.	72-99, 3-8.4.1.3.7.3
h.	There shall be provided a minimum of 25 keys to the telephone cabinets which shall be located in the Fire Control Room. Locks shall be uniform and require the use of one key to unlock any telephone cabinet.	

3. Fire Detection and Alarm System Annunciator Panels - Sprinkler Valve and Water Flow Detector Panels

a.	Panels may be the graphic annunciator type or labeled device type with adjacent fixed building diagram.	IBC 907.8.1
b.	Annunciator panel or individual device panels shall clearly indicate the type of initiating device, the floor level of alarm, and the zone (See item "f" under Voice Alarm and Public Address Systems).	IBC 907.8.2

c. Stairwells shall be clearly shown and labeled on graphic or building diagram. A "you are here" shall be shown and labeled on graphic or diagram. If stairs discharge at other than entrance level, so indicate.

d. All manual or automatic fire detection or suppression devices shall be annunciated including the following: fire alarm stations, smoke detectors, heat detectors, elevator lobby smoke detectors, duct smoke detectors, atrium smoke detectors, sprinkler flow switches, standpipe flow switches (1 required at the base of each standpipe riser), fire pump flow switch, and tamper switches. IBC 907.10, 907.8.2

e. Activation of any of the above listed devices, with the exception of the standpipe flow switches, fire pump flow switch, and tamper switches, shall cause the activation of the stairwell pressurization systems and the fire alarm signal and pre-tape message to the required zones.

f. Activation of the standpipe flow switches, fire pump flow switch, or tamper switches shall initiate an audible and visual trouble signal at the Fire Control Panel and to a central station or continuously manned station.

g. All wiring and power supply shall be continuously supervised. Detection of any fault shall initiate a visual and audible trouble signal at the control panel and to a location as indicated in Section V A-1.

h. The system shall be designed and installed so trouble conditions may be readily detected by floor level and/or zone. Visual trouble indicators at the control panel shall indicate type of device.

4. <u>Status Indicator for Elevators</u>

a. Status indicators shall be provided for each elevator car. A green light for normal operations, red light for power off, and a yellow light for emergency recall shall be provided. IBC 911.1(4), IBC 3003

b. Activation of any elevator lobby smoke detector shall initiate elevator recall (Machine Room Detector included). 72-99, 3-9.3

c. The elevator emergency recall system shall be programmed to return all elevators to the main lobby floor level of return. There shall be secondary floor level of return in the event the primary floor is in alarm. The secondary floor shall be as directed by the Fire Marshal.

d. The elevator emergency controls are to be located at the main lobby. This shall be a three position switch - normal operation - manual over-ride - emergency recall. It is recommended that an additional control be located in the Fire Control Room which shall have a permanently attached key.

5. Status Indicators and Controls for the Fire Pump,Emergency Generator, Air Handling Systems, Smoke Removal Systems, Stairwell Pressurization Systems. — IBC 911

   a. Status indicators, green light - on, red light - off, and operational controls shall be provided for each of the above in the Fire Control Room. — IBC 403.11

   b. Where there is more than one system, i.e., air-handling systems, smoke removal systems or stairwell pressurization systems, status indicators and controls shall be provided for each separately, on a per floor basis (H-O-A's) or per stair basis. Labeling shall clearly show any system integrated with smoke control. — IBC 403.11.1

6. Stairway Door Unlocking Systems

   a. Controls shall be provided to unlock all stairwell doors simultaneously from the Fire Control Room (stairwell doors shall automatically unlock upon an Fire Alarm, and no door may be locked in the direction of egress travel except under provisions of IBC 1003.3.1.8.2).

   b. Telephones shall be provided inside the stairwell at a minimum of every 5th floor. They shall provide direct communication to the Fire Control Room, and to an approved emergency service.

   c. Telephone communication wiring and power supplies shall be continuously supervised for open, short, or ground conditions. Detection of any trouble fault shall initiate a visual and audible trouble signal at the Control Panel and at the central station.

7. Public Telephone

   a. A public telephone shall be provided inside the Fire Control Room. The telephone shall not be coin operated. It is suggested that the telephone be an extension of the building owner or management telephone rather than a separate telephone number. — IBC 911.1(10)

VI. Emergency Power Requirements

A. Standby Power

The following systems or equipment shall be connected to the standby power system: — IBC 2702.2.14, 403.10

1. All fire alarm equipment.
2. All stairwell pressurization systems.
3. Elevator designated for fireman's use.

4. Emergency lighting and exit lights.
5. Fire pump.

Note: Stairwell pressurization systems do require standby power. Likewise, atrium and floor opening smoke control do require standby power. (IBC 404.7)

B. Emergency Systems

Egress lighting, exit signs, elevator car lighting, and door unlocking are emergency systems and shall be supplied with backup power within 10 seconds of primary power failure.

C. Load Acquisition for Standby Power

The following systems shall be supplied with standby power within 60 seconds of loss of primary power: fire alarm and voice communication systems, fire pump, fireman's elevator, stairwell pressurization.

Note: Neither standby nor emergency power for a high-rise building may be provided by connection ahead of the main disconnect. Options 700-12(e)/701-11(e) of NEC are not permitted for high-rise buildings.

VII. Test and Inspection Requirements

A. No inspection or tests shall be made without approved stamped plan on the job site.

B. Tests and inspection shall be made by appointment only.

C. Each component shall be tested.

D. Spot checks of the system shall be made while operating on the emergency power system.

E. A representative of the equipment supplier shall be present during all tests and inspections of the system.

F. A sound pressure level meter shall be provided by the contractor for use in testing the system.

G. The system should be pre-tested by the contractor to assure proper operation prior to requesting inspection by the Fire Marshal.

H. Tests and inspections of the system should commence no later than 30 days prior to anticipated or desired occupancy. Past experience indicates the time required to complete inspections and tests takes four (4) men approximately one (1) week.

I. The supplier shall furnish complete operating instructions and personnel necessary to instruct and train fire department personnel in the operation of the system.

J. Areas with smoke detectors shall be free of dirt, dust, and sanding residue.

FAIRFAX COUNTY FIRE PREVENTION DIVISION
(703) 246-4806
FAX (703) 691-1053

HIGH RISE FIRE ALARM ANNUNCIATOR PANEL (SAMPLE)

DEVICE (RED)		LOCATION (RED)
○ Manual Station		○ PH
○ Smoke Detector		○ 20th Floor
○ Duct Detector	*	
○ Heat Detector	○ 10th Floor	
○ Atrium Smoke Detector		*
		*
○ Elevator Lobby/ Machine Room Smoke Detector		*
		○ 1st Floor
○ Sprinkler Flow	○ Atrium	
○ Halon (or) Pre-Action System		○ Basement
		○ Cellar
		○ Garage Level P1
○ Kitchen Hood		○ Garage Level P2
(YELLOW)		
○ Standpipe Flow		○ System Trouble (with buzzer)
○ Stair A		
○ Stair B		
○ Stair C		◙ Trouble Silence
○ Fire Service Line		
○ Valve Tamper	◙ Reset	
○ Dry Pipe Hi/Lo Air		
		○ Lamp Test

Fire Pump
Remote Start (GREEN) ○ Fire Pump Run
◙ ON (YELLOW) ○ Fire Pump Fault
AUTO

Stair Door Unlock ◙ Unlocked (G) Locked (R)

Generator
Remote Start (GREEN) ○ Generator Run
◙ ON (YELLOW) ○ Generator Fault
AUTO

1. The above drawing is a sample. Fan control panel must be adjacent to this panel and both, plus FACP and VOICE/PAGING/FIREMAN's PHONE panels, must be in 1-hr rated fire control room at the main lobby. See IBC 911 for all equipment, including elevator panel.
2. Maximum annunciation zone size = 22,500 sq. ft. (IBC 907.8) Sprinklers zoned by floor only, except for atriums. All sprinklers in atrium must annunciate as atrium sprinklers.
3. Floor, zone and type of device must annunciate, except see note 2.
4. Ring back required on trouble & reset.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-017
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: UNDERGROUND STORAGE TANKS AND ABOVEGROUND STORAGE TANKS INSTALLATION, ABANDONMENT, REMOVAL AND TESTING PROCEDURES	

TO: Business Owner/Operator
Tank Installer/Tank Removers

Under the provisions of Title 36, Chapter 6 of the Code of Virginia, underground storage tank installation, removal, closure and testing shall be performed in accordance with Virginia Uniform Statewide Building Code (USBC). Section 415.1.1 of the USBC requires that the installation, upgrade or closure of any underground storage tank containing an accumulation of regulated substances shall be in accordance with underground storage tank regulations adopted by the Virginia Department of Environmental Quality, Water Division.

Aboveground storage tank installations shall comply with Section 415.1.1 of the 2000 Edition of the Virginia Uniform Statewide Building Code and Section 3404 of the Virginia Statewide Fire Prevention Code (The 2000 Edition of the IFC).

NO PRODUCT SHALL BE INTRODUCED INTO TANKS OR LINES UNTIL A REPRESENTATIVE FROM THE FIRE PREVENTION DIVISION HAS WITNESSED THE REQUIRED TEST(S) OR INSPECTION(S) AND GRANTED WRITTEN APPROVAL.

A. INSTALLATION OF NEW ABOVEGROUND OR UNDERGROUND STORAGE TANKS shall be in accordance with the following procedures. Submit to the "Plans Review Section" of the Fire Prevention Division:

1. Three copies of the completed site plan for our review and approval, showing the location of the tank(s), distances from the tank(s) to all above or underground structures, monitor well locations, and location and layout of all piping and dispensing units associated with the tank(s).
2. Three copies of complete elevation plans of the tank(s) shall also be submitted, showing depth of burial, fill material, overtop slab if present, ballast slab if present, fill and vent piping and vapor recovery. Tank specifications including manufacturer's cut sheets shall also be included. Information on spill and overflow protection shall be shown. For aboveground tanks, complete plans of tank and supporting structure shall be provided. Include details and cut sheets for leak detection where required.
3. Three copies of buoyancy calculations from the tank manufacturer or submitter (for underground tanks).
4. One completed mechanical permit application from the Department of Environmental Management, Fairfax County, Virginia (324-1550).

Petroleum storage tank and distribution piping system plans review fee(s) is as follows:
_____/hr of review time

Only after the above procedures have been reviewed and approved can the installation of tanks, product lines and equipment begin. Prior to pit closure and covering of product lines, the following steps shall be taken by the installer.

1. A strength test (by manufacturer) - a label on the tank to verify ASME, UL, API, or ULC;

2. An air test (before placing in pit or for aboveground tanks, before any product is introduced - 5 psig;

3. A visual inspection witnessed by a Fire Prevention Division inspector of the hold down pad or deadman anchors, bedding and straps is required prior to backfilling the pit;

4. An air test of the tank(s) after placing in pit or after mounting on its foundation, prior to introduction of product - 10 inches by mercury gauge or 5 psig (gauge shall have a maximum reading of 15 psi and be graduated in 1 psi increments) for a minimum of 60 minutes. If applicable, the interstice on double-walled tanks shall be tested as per the manufacturer's instructions for a minimum of 60 minutes. These shall be witnessed by a Fire Prevention Division inspector;

5. A hydrostatic test - when static head on bottom of tank is over 10 psig;

6. An air test of the product lines (suction system) - shall be done when the tank is air tested. Product lines shall be installed to the tank and capped off at connection to the device;

7. An air test of the product lines (with day tank) - 5 psig every ten feet of elevation for a minimum of 10 minutes witnessed by a Fire Prevention Division inspector;

8. An air test of the product lines (submersible systems) - 50 psig for a minimum of 10 minutes witnessed by a Fire Prevention Division inspector;

9. An air test of secondary containment piping - 5 psig for a minimum of 10 minutes witnessed by a Fire Prevention Division inspector; and

10. A visual inspection, witnessed by a Fire Prevention Division inspector, of the product line trenches is required when the backfill is even with the top of the product lines.

New petroleum storage tank inspection fee(s) per visit per tank and piping distribution system is as follows:

1. Single Wall - _____

2. Double Wall - _____

(Note: Multiple tank installations located on the same site which can be tested simultaneously will be counted as one tank for fee charge purposes.)

The installer shall call the Fire Prevention Division, Inspections Section, at 246-4849 to schedule an inspection appointment at least 24 hours in advance.

ASTs for Dispensing shall be Fire-Resistive TANKS or TANKS in Vaults. See 30A-96, 2-4.2 (All), and F-3404.2.7. (All)

B. INSTALLATION/REPLACEMENT OF NEW PRODUCT LINES ONLY shall be in accordance with the following procedures. Submit to the "Plans Review Section" of the Fire Prevention Division:

1. Three copies of the completed site plan for our review and approval, showing the location of the tank(s), distances from the tank(s) to all above or underground structures, and location and layout of all piping and dispensing units associated with the tank(s); and including manufacturer's cut sheets for non-metallic piping.

2. Three copies of complete elevation plans showing depth of burial and fill material.

3. One completed mechanical permit application from the Department of Environmental Management, Fairfax County, Virginia (324-1550).

Only after the above procedures have been reviewed and approved can the installation of product lines begin. Prior to covering the lines, the following steps shall be taken by the installer:

1. Suction systems - Air test of 5 psig for a minimum of 10 minutes shall be witnessed by a Fire Prevention Division inspector;

2. Submersible systems - Air test of 50 psig for a minimum of 10 minutes shall be witnessed by a Fire Prevention Division inspector; and,

3. Secondary Containment Piping - Air test of 5 psig for a minimum of 10 minutes witnessed by a Fire Prevention Division inspector.

New product lines inspection fee(s) per visit per piping distribution system is as follows:

1. Single Wall - _____

2. Double Wall - _____

(Note: Multiple line installations located on the same site which can be tested simultaneously will be counted as one tank for fee charge purposes.)

The installer shall call the Fire Prevention Division, Inspections Section at 246-4849 to schedule an inspection appointment at least 48 hours in advance.

All new installations shall meet NFPA 30, 30A, 31 and 407 and Article 34 of the Virginia Statewide Fire Prevention Code and the County of Fairfax Fire Prevention Code, as amended.

C. REMOVAL OR CLOSURE OF UNDERGROUND STORAGE TANKS shall be in accordance with the following:

1. Compliance with Chapter 7 of DEQ's requirement - see document VR 680-13-02.

2. A Fire Prevention Code Permit shall be obtained from this office for Article 2801 - Removal/abandonment of underground flammable or combustible liquid storage tank(s). This permit shall be obtained in person.

   A check made payable to the "County of Fairfax" in the amount of $58.00 shall be presented at the time of application. Three site drawings shall be submitted showing the location of the tank(s) in relationship to buildings, lot lines and underground utilities.

3. All tanks and tank pits shall be inspected by a Fire Prevention Division inspector after tank removal or permanent closure. Call 246-4849 to schedule an inspection appointment at least 24 hours prior to closure or removal of the tank(s).

4. A minimum of two soil samples shall be taken from each tank pit for analysis by a certified laboratory. The results of the analysis, along with the tank closure form, shall be mailed to the Virginia Department of Environmental Quality.

5. The pit(s) may be backfilled for safety reasons with the understanding that the DEQ may order the pit(s) to be reopened and cleaned out if tests show gross contamination of the soil. Soil remediation shall comply with the Department of Environmental Quality, Department of Waste Management, and Department of Air Pollution Control regulations.

6. Tanks permanently closed in ground shall comply with the following:

   a. All liquids shall be removed from the tank and lines.

   b. Tanks shall be thoroughly cleaned to remove any vapors or sludge.

   c. Suction, inlet, gauge and vent lines disconnected.

   d. Fill pipe removed.

   e. Tank shall be filled with a solid inert material.

7. The tank(s) and contaminated soil shall be disposed of at a site for such waste. Consult the yellow pages of your local telephone directory under "Scrap Metal."

Testing and recordkeeping of underground and aboveground storage tanks shall be in accordance with regulations adopted by the Department of Environmental Quality and Article 28 of the Virginia Statewide Fire Prevention Code and the County of Fairfax Fire Prevention Code, as amended.

Should you have any questions or need assistance, please contact the "Inspections Section" of the Fire Prevention Division, Monday through Friday during the hours of 8:00 a.m. to 4:30 p.m. at 246-4849.

	FAIRFAX COUNTY FIRE AND RESCUE PREVENTION DIVISION POLICIES, OPERATIONS, AND PROCEDURES	EPR-018
	ISSUED BY: REISSUE DATE: OCTOBER 1, 2003 DEPUTY FIRE CHIEF GLENN P. BENARICK	
	SUBJECT: MARKING OF HIGH-RISE BUILDING STAIRWELLS AND FLOORS	

TO: High-Rise Building Owners, Operators or Managers

REFERENCE: Fire Prevention Code of the County of Fairfax
Section F-113.0 - Promulgation of Fire Safety Regulations
Section F-113.1 - Regulations Requiring Posting of Signs
Section F-504 – Access to …

This letter is to advise you of the requirement for you to identify each stairwell located within your high-rise building. All high-rise buildings shall be required to display, in the lobby and fire control room, a simplified schematic of the building's foot print and a sign in each stairway containing the following information:

- The foot print shall be an overhead view of the building's exterior and general layout of the first floor or lobby floor. Stairwells shall be denoted by a letter, starting next to the main entrance with "A" and continuing in a clockwise or left to right pattern. (See attached drawing #1).

- Additionally, a sign shall be provided, as approved by the Fire Prevention Division, at each floor landing in all interior stairwells, identifying the stairwell by letter, designating the floor level, the level of exit discharge and stating if there is no access to the roof from that stairway (i.e., roof access means door to roof regardless of locked or unlocked). The sign shall be located five (5) feet (1525 mm) above the floor landing in a position that is readily visible in the stairwell when the door is in the open or closed position. This information may be stenciled directly onto the wall. (See attached drawing #2).

- Two copies of the foot print and stairway sign shall be submitted to the Fire Prevention Division Special Operations Branch for approval before installation and will be verified by fire inspectors.
-

Submit the above information to the following address:

Fairfax County Fire & Rescue Department
Fire Prevention Division - Systems Branch
4100 Chain Bridge Road
Fairfax, Virginia 22030
Attention: Sign Project

This new procedure will aid fire and rescue personnel to mitigate a fire emergency in your high-rise building. Thank you for your cooperation. If you have any questions, please contact the Systems Branch at (703) 246-4821.

A 12

EXIT ON FLOOR 1

NO ACCESS TO ROOF